



News/What to Watch For:

It is time where it is OK to prune peach trees; other fruit trees should already have been pruned.

Major pest “calendar”: This newsletter will include timely information for when to treat major pests. My predictions for this year (northern Utah) are: **codling moth** first treatment, around mid-May; **peach twig borer**, early to mid-June; **western cherry fruit fly**, early to mid-June, and **greater peachtree borer**, late June.

Production information: “Frost Protection Strategies,” page 4

Bud Stages

The cooler weather to come will slow down bud development. For images of bud stages, [click here](#) for a pdf fact sheet.

Davis County, Box Elder County, Salt Lake County:

Apples: silver tip - green tip
Apricots: first bloom
Cherries: swollen bud - budbreak
Peaches: quarter inch green
Pears: dormant - swollen bud

Cache County:

Apples: silver tip
Cherries: swollen bud
Peaches: swollen bud
Pears: swollen bud

Utah County:

Apples: silver tip - green tip
Apricot: first bloom
Cherries: swollen bud - budbreak
Peaches: swollen bud - first pink
Pears: budbreak

Weber County:

Apples: silver tip - green tip
Apricot: first bloom
Cherries: swollen bud - budbreak
Peaches: swollen bud
Pears: swollen bud - budbreak

Information on Dormant Sprays

If you have not applied your delayed-dormant treatment, there is still time (except on apricots, which are blooming now). The *last point* at which you would apply the full oil rate (at 2%) is:

Apples: 1/2” green (ideally, at or by green tip)

Pears: cluster bud

Peaches/Nectarines: pre-bloom (when the pink shows through the bud)

The oil used for the dormant spray is called horticultural oil, and it is emulsifiable, meaning it mixes with water. It is applied on a “percent-by-volume” basis, and at 2%, that is 2 gallons per 100 gallons of water, or 5 Tbs in 1 gallon of water.

Most oils are simply sold as “dormant oil” and the ingredients will be “98% (or higher) petroleum oil”. This type of oil is suitable for sprays in the dormant season (2% rate) as well as sprays during the growing season (1% rate).

Usually horticultural oil alone is sufficient for delayed dormant sprays, particularly for backyard growers. Commercial growers may consider mixing oil with an insecticide such as Lorsban. When applying dormant or delayed dormant sprays, make sure you thoroughly cover all bark cracks and crevices.

Dormant sprays are targeted toward insects that overwinter in the tree, either as eggs (mostly aphids), or as nymphs/adults (peach twig borer, scale). It works by blocking respiratory openings and results in suffocation. This spray is a good management tool because beneficial insects and pollinators are not affected, oil is relatively inexpensive, and the developing ground vegetation will help to prevent runoff.

Do not apply oil to trees if temperatures are forecast to drop below freezing for the next 24 hours or so. (And in summertime, when oil is used at 1% volume, it should not be applied when temperatures will reach 90 F within 4 hours.) Ideally, oil should be applied on a clear, non-windy day in the 50 to 70 F degrees temperature range.

Keep in mind that dormant sprays are not required every year. You should keep track of your pest populations from year to year (by examining leaves and twigs for insects). When damage is slight to non-existent, you can skip the dormant sprays.

Dormant Spraying, continued from previous page



aphids: Overwinter as eggs near buds. Oil alone or with Lorsban (restricted use) or pyrethroid at delayed-dormant timing; repeat if infestations were high last year.



San Jose scale: Overwinters as a mix of nymphs and adults. Nymphs have "black caps". Use oil alone or with pyriproxyfen (Esteem). See next page for more info.



pear psylla: Adults lay eggs near buds in early spring. If this was a problem last year, apply oil twice, spaced about 7 days apart. See next page for more info.



peach twig borer: Overwinter as larvae in crevices in the tree canopy. Use oil alone or mix with spinosad.



blister mites: These mites cause tiny galls on the leaves of apple or pear. They overwinter in bud scales. Apply oil, or oil with Sevin, delayed-dormant timing.



brown mites: Overwinter as eggs in protected sites on trees (unlike spider mites, that overwinter on the ground). Oil alone is sufficient for this pest, if it has been a problem.

Insect and Disease Information

San Jose Scale

Hosts: apple (primarily)



If you've been pruning or performing general inspections of your apple trees, San Jose scale is an insect you should have noticed, if present. Scales are immobile insects with a hard outer covering. They look like pimples or large pepper flakes on fruit and on tree bark. If left unmanaged, a small population on the bark can erupt to major fruit injury the following year. Controlling them requires good coverage of the delayed-dormant oil spray, plus a treatment targeting the crawlers in June.

In low to moderate population levels, horticultural oil alone in a 2% delayed-dormant application (up to green tip stage) is fairly effective. Where populations are high, add an insecticide to the oil, such as Supracide 25WP (pre-bloom only), Lorsban (once, pre-bloom only), or a pyrethroid like Asana or Hi Yield Indoor/Outdoor Broad Use (pre-bloom only).

Later in the season, "crawlers" hatch from underneath the female scales and move about for a few days to settle and feed. When they are moving, they are easy to kill with softer insecticides. Options for commercial growers include Esteem 35WP (with or without 0.5% oil), Centaur 0.7WDG (with 0.25% oil), or Movento (with a surfactant). Backyard growers can consider Esteem, as well, or insecticidal soap, or 1% oil.

When known, we will report on when to treat for scale.

Pear Psylla

Hosts: pear



Pear psylla adults were observed in high numbers on pear trees in Utah County. They overwintered in groundcover and other hosts, and are now visiting pear trees to mate and lay eggs. The delayed-dormant application will kill eggs that have already been laid, and will also deter further egg-laying since adults are repelled by oily surfaces. Adults finish their egg-laying by bloom, and hatching begins around petal-fall.

Their nymphs feed on the undersides of foliage and excrete sticky honeydew. They also cause what appears to be a "blight", where portions of leaves are killed. If pear psylla is present and the eggs are not killed by the delayed-dormant treatment, the next option is careful monitoring of nymphs and an insecticidal application soon after petal fall.

Coryneum Blight

Hosts: apricot, peach, nectarine, plum, cherry



Coryneum blight, also known as shot hole, is caused by a fungus, and infects leaves, fruit, and small twigs. The fungus overwinters in buds and spreads to leaves and developing fruit in the spring. Cool, wet weather and at least 6 hours of rainfall are required for spread.

At the pre-pink stage (for peaches), copper can be applied to the trees to help control this pest. Additional fungicide treatments may be necessary (to be covered in future newsletters).

Production Information

Frost Protection Strategies

An early spring, such what we are seeing this year, means early bloom. Early bloom means greater risk for frost injury, especially given the fact that the average last frost date for most areas of northern Utah is late April to mid May. This article is a repeat from a 2013 issue, explaining various ways to protect trees from frost injury.

Often one or two degrees is the difference between a saved or lost crop. For example, if apples are in bloom, and the temperature drops to 25°F for just 30 minutes, potentially 90% of the flowers can be killed (called T90). (For a table of these critical temperatures, [click here](#).) No frost protection scheme will be perfect, and the costs range from minimal to the extreme.

The first key to know whether or not to protect the crop is to know which crops are susceptible for the predicted low, and the locations of the coldest areas of your orchard or site. Also, note that weather stations that report forecasting temperatures might be warmer or colder than your area.

Cloth Coverings: This option is only to protect a small number of trees; it is not practical for an orchard. Light sheets, burlap, or frost blankets can provide some protection. (Do not use plastic or heavy blankets as these will soak up moisture that will freeze.) The best way to apply the cover is to drape it over the tree and make sure it reaches the ground to retain all the warmth under the cloth. A wet soil is good at this time of year because it absorbs heat during the day. Don't remove the cloth until late in the morning the next day.

Water: According to research, overhead irrigation can increase temperatures by 4 to 6 degrees, and under-tree irrigation by 1 to 3 degrees. Using water is one of the cheapest options, where it is available. The down-side of using water is over-saturating the soil, leaching of nutrients, and runoff. The irrigation must continue until any ice that has formed melts.

Orchard Heater: Heaters can help to gain around 1 to 3 degrees in an orchard. This is one of the most expensive and least efficient options. In a larger orchard, they require lots of fuel and labor. About 40 to 60 heaters are needed per acre, each using about 1 gallon of fuel per hour. Only about 10-15% of the heat actually stays in the orchard; the rest is dissipated. Heaters are best used in conjunction with wind machines.

Wind Machines or Helicopters: These devices mix warm air from above with cold air at tree level, and can help to gain around 1 to 4 degrees in an orchard. A wind machine covers about 10 acres, while a helicopter, although more expensive (\$700 - \$2,000 per hour), can protect 40 acres, and can bring warm air down from higher levels.



Frost Rescue Spray: A material called Promalin (a plant growth regulator from Valent that is normally used for fruit size and quality) was tested in the spring of 2012 as a frost rescue spray. In North Carolina and New York, it was applied to apples within 5 hours of a T90 frost event.

In the NC trial, the Promalin-treated orchard ended up with a 75% crop loss while the untreated orchard was entirely lost (a difference of \$2,400 per saved acre). They found that the surviving Promalin-treated apples grew to a normal size, but were seedless. The Promalin prevented the apples from dropping, even though the seeds were dead. Questions remain about the efficacy of Promalin, such as whether it can be used before bloom, how long after a freeze is it effective, and the problems of storing fruit without seeds.

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